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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/574,228

06/11/2007

Marcel Adriaan Jansen

ACH-3018

2145

56744

7590

04/13/2010

Albemarle Netherlands B.V.
Patent and Trademark Department
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EXAMINER

LIAO, DIANA J

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

04/13/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,228	Applicant(s) JANSEN ET AL.	
	Examiner DIANA J. LIAO	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 16-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Status of Application

1. Applicant's arguments filed 3/23/2010, with respect to the finality of the previous action and the use of Shukis, et al. (US 6,329,054) have been fully considered and are persuasive. The finality of the previous action and the 35 U.S.C. 103 rejection of claims 1, 2, 4-9 and 11-15 under Shukis '054 have been withdrawn. The following action contains a new grounds of rejection and is a non-final rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 8, 12, 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by McVicker, et al. (US 4,522,928), with data sheets from INCHEM.org and OSHA to show inherent state of fact.

McVicker '928 teaches the removal of contaminants from a hydroconversion catalyst, specifically ones containing a combination of Group VIB, Group VIIB and Group VIII metals. (col 2, lines 48-50) The fouled catalyst is contacted with a buffered oxalic acid solution for a time sufficient to extract contaminants. (claim 9) Oxalic acid is a carboxylic acid, containing two carboxyl groups. The buffer may be chosen from a wide variety of organic salts and acids. One of the mentioned buffering agents is

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hexanoic acid (col 3, lines 45-47), which contains six carbon atoms and one carboxylic group and has a solubility of 11g/L and a boiling point of 205°C (see data sheet from INCHEM included with this action).

McVicker '928 thus teaches a process for treating a hydrotreating catalyst comprising a Group VIB metal and a Group VIII metal oxide by contacting an acid (oxalic acid) and an organic additive (e.g. hexanoic acid), wherein the organic additive has a boiling point and solubility within the claimed ranges. McVicker '928 also teaches that the catalyst is contacted with the treating solution for a sufficient amount of time, equivalent to the claimed "aging" step.

Alternatively, the instant specification acknowledges that the "organic additive" may also be an acid. The above combination of compounds from McVicker '928 may be interpreted to refer to hexanoic acid as the claimed acid with oxalic acid as an organic additive. Thus regarding claim 15, oxalic acid contains two hydroxyl groups within the carboxylic groups and contains two carbon atoms. Oxalic acid has a solubility of approximately 100 g/L and a boiling points 149-160°C, also falling into the claimed ranges.

Therefore claims 1, 8, 12, 14, and 15 are not found patentable over the prior art.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-4, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weissman, et al. (US 5,389,592).

Weissman '592 teaches a method for enhancing regenerated hydroprocessing catalysts. The active metals for these types of catalysts include those of Groups VIB and VIII, and most commonly Ni, Co, Mo, and W. (col 2, line 2-10) The process utilizes a boron containing compound as well as solvents, such as alcohols (equivalent to claimed organic additive). (claim 1) The boron containing compound may be boric acid (claim 6), thus teaching contacting the catalyst with an inorganic acid. Alcohols are typically miscible in water and thus show great solubility. Alcohols have varying boiling points, including those of between 80-500°C. For example, isopropyl alcohol has a boiling point of 82.3°C, which is not found patentably distinct from the use of alcohols as solvents compatible with the treatment liquid in the instant specification, which may be methanol, ethanol, or other alcohols. (pg 7, lines 1-6) Regarding an aging step, the

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boric acid is contacted for a time sufficient to enhance the regenerated catalyst and is found to meet the limitation for "aging".

The crystalline fraction of the catalyst is not discussed in Weissman '592. However, it would have been obvious to one of ordinary skill in the art to perform reactivation strategies to any suitable catalysts, including either or both of crystalline or amorphous type catalysts.

Therefore, claims 1-4, 8 and 10 are not found patentable over the prior art.

7. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over McVicker '928.

As discussed above, McVicker '928 teaches contacting a buffered oxalic acid solution with a hydrotreating catalyst in order to remove contaminants. McVicker '928 also teaches that it is known in the art to use oxalic acid and nitric acid, an inorganic acid in combination to treat contaminated catalysts. (col 1, lines 49) The oxalic acid is in an amount from 0.0001M to 5.0M in order to achieve a desired pH in combination with the buffering agent. (col 3, line 69-col 4, line 3) The buffering agents available include those of acetic acids, organic salts, and ones which include several hydroxyl groups (e.g. bicine, glycylglycine) which are chosen based on the contaminant to be removed. (col 3, lines 31-50) The contacting temperature between the catalyst and the solution is preferably from 0-100°C (col 4, lines 8-12), which suggests that the solution may not boil at this temperature and must preferably have a boiling point higher than 100°C.

The crystalline fraction of the catalyst and the use of this process on a fresh hydrotreating catalyst is not discussed in MicVicker '928. However, it would have been obvious to one of ordinary skill in the art to perform reactivation strategies to any suitable catalysts, including either or both of crystalline or amorphous type catalysts and fresh catalysts if they already contain contaminants from original production. Regarding the use of a calcined fresh catalyst, calcining catalyst compositions is well known in the art as a step of production in order to dry a catalyst or stabilize its components. Therefore, the use of a calcined catalyst is not found patentable over the prior art.

Regarding the acid concentration being at least 5 wt.%, McVicker '928 does not teach acid amounts relative to the catalyst weight. However, McVicker '928 does teach that the molarity and amount of acid is dependent on the pH desired. It would have been obvious to one of ordinary skill in the art to optimize the amount of acid in order to remove the desired contaminant and amount of contaminant from the catalyst.

Regarding the use of an inorganic acid, McVicker '928 teaches that it is known in the art to utilize a combination of oxalic acid and nitric acid in order to remove desired contaminants. It would have been obvious to one of ordinary skill in the art to utilize an additional acid, such as an inorganic acid, depending on the contaminants that are desired to be removed.

Regarding the use of citric acid, citric acid is a well known organic acid often used in similar processes as oxalic acid. It would have been obvious to one of ordinary skill in the art to apply an obvious variant of oxalic acid.

Regarding the use of an additive comprising at least two hydroxyl groups and 2-10 carbon atoms, McVicker '928 gives examples of many buffering agents, including those with 2-10 carbon atoms and at least two hydroxyl groups. The contacting of the solution and the acid preferably occurs below 100°C, suggesting that the boiling points of the buffering agents may not be below 100°C and thus in general have a boiling point range overlapping or containing the claimed boiling point range. The general teachings offered by McVicker '928 on which buffering agent types are appropriate for metal contaminant removal is found to teach with sufficient specificity an additive comprising at least two hydroxyl groups and 2-10 carbon atoms. Regarding the solubility of these buffering agents, since they are used to adjust the pH, they must be sufficiently soluble in water to do so. The term buffer implies or suggests a high solubility.

Therefore, claims 1-15 are not found patentable over the prior art.

Response to Arguments

8. Applicant's arguments filed 3/23/2010 have been fully considered but they are not persuasive.

Applicant argues that the teaching in Weissman '592 to use alcohols does not properly render the claimed additive unpatentable and that hindsight was used to select the alcohol noted above. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction

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based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). The note of an example alcohol that meets the additive criteria was merely to show that the *overlap of the scope* of the prior art and the instant claims render the claims unpatentable. There is no evidence that the claimed boiling point and solubility of the organic additive materially exclude the isopropyl alcohol of Weissman '592. A showing of unexpected results would have to be directly shown to differentiate the prior art process from the claimed process.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIANA J. LIAO whose telephone number is (571)270-3592. The examiner can normally be reached on Monday - Friday 9:00am to 6:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DJL

/Timothy C Vanoy/

Primary Examiner, Art Unit 1793